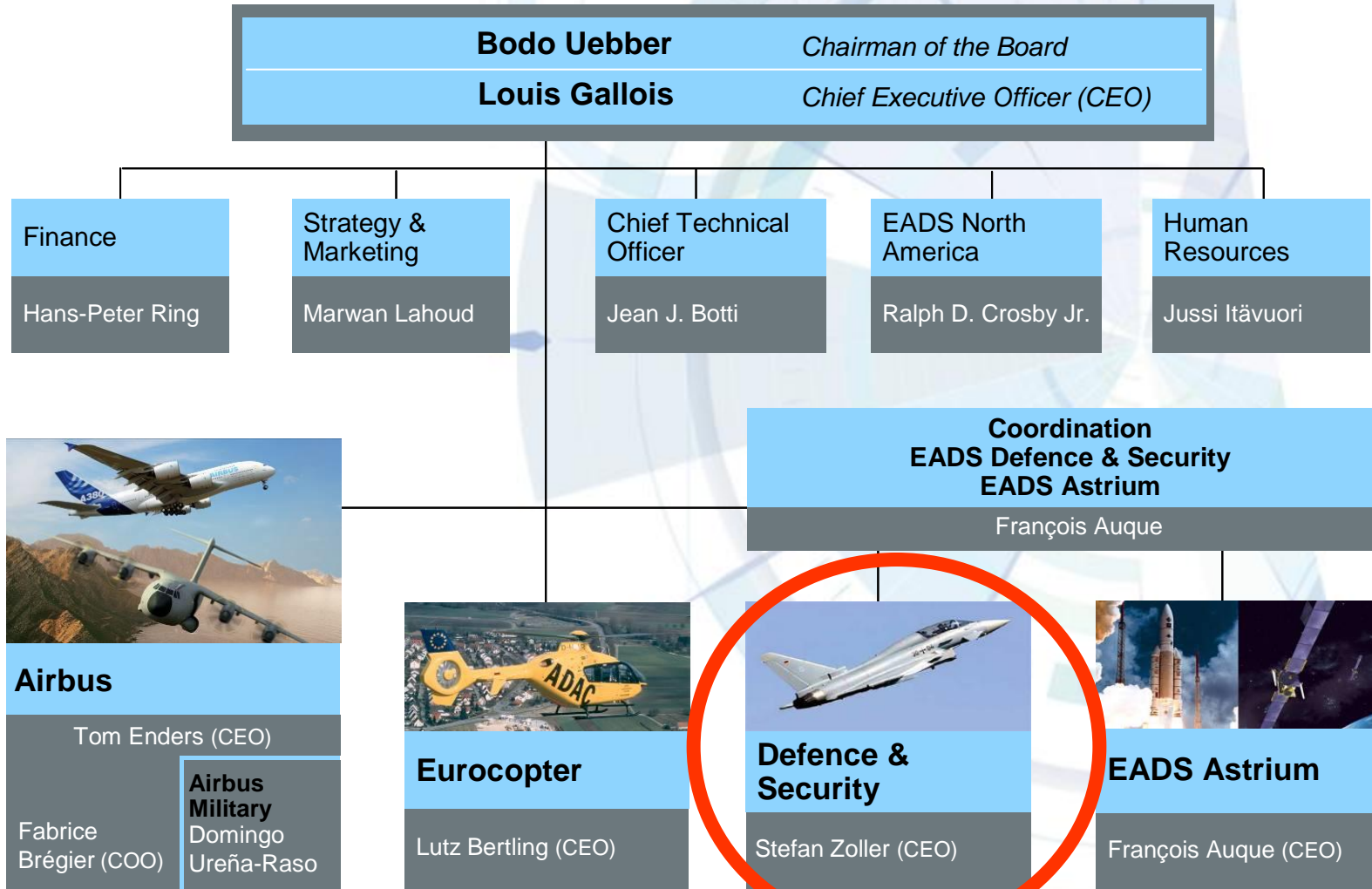


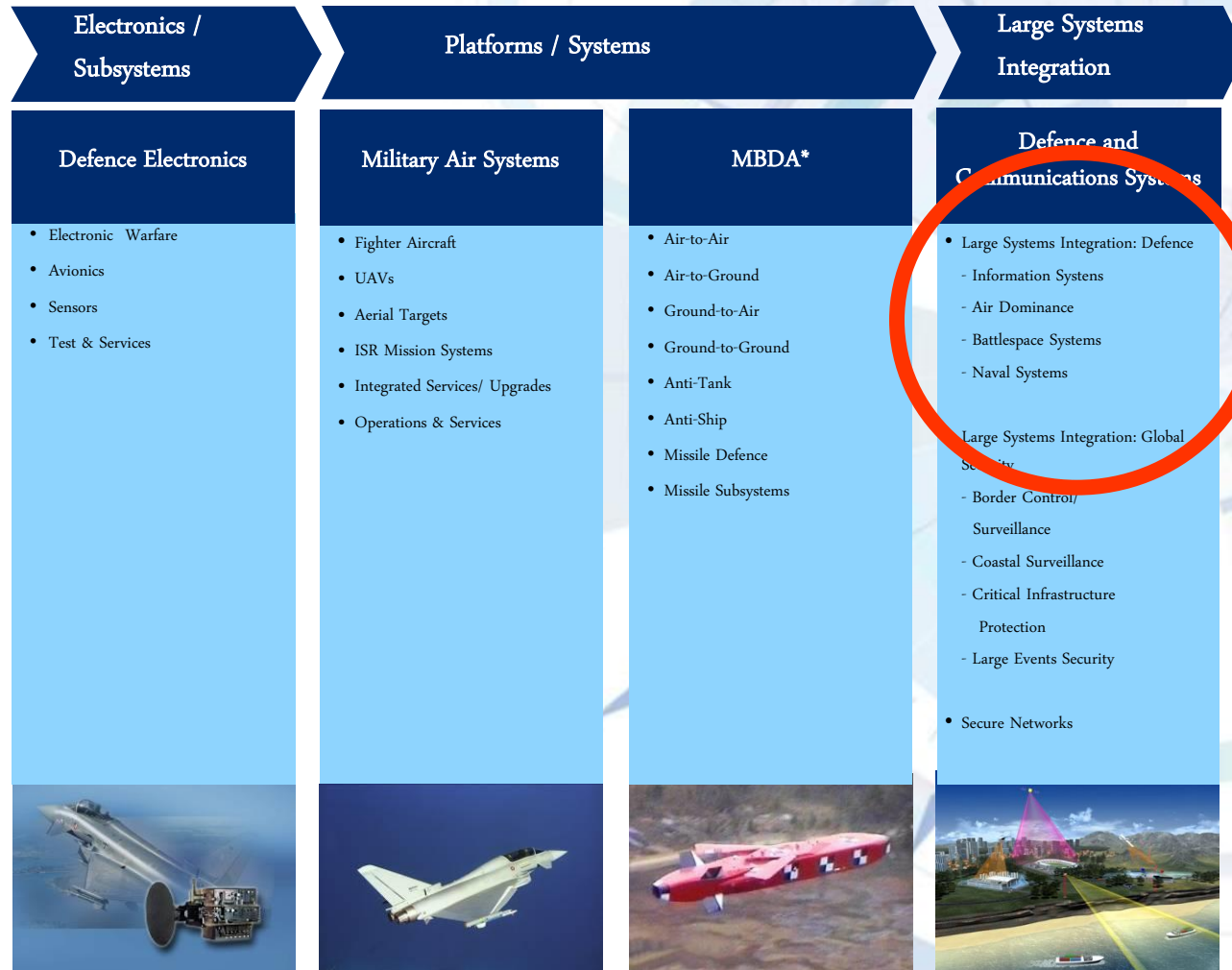
An Industry-Perspective on BML



NMSG-079,
Farnborough, February 25th

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C4I systems developed by EADS DS

EADS DS designs, develops, integrates and supports all relevant command, control, communications and information systems (C3I) for battlefield applications

Major programmes

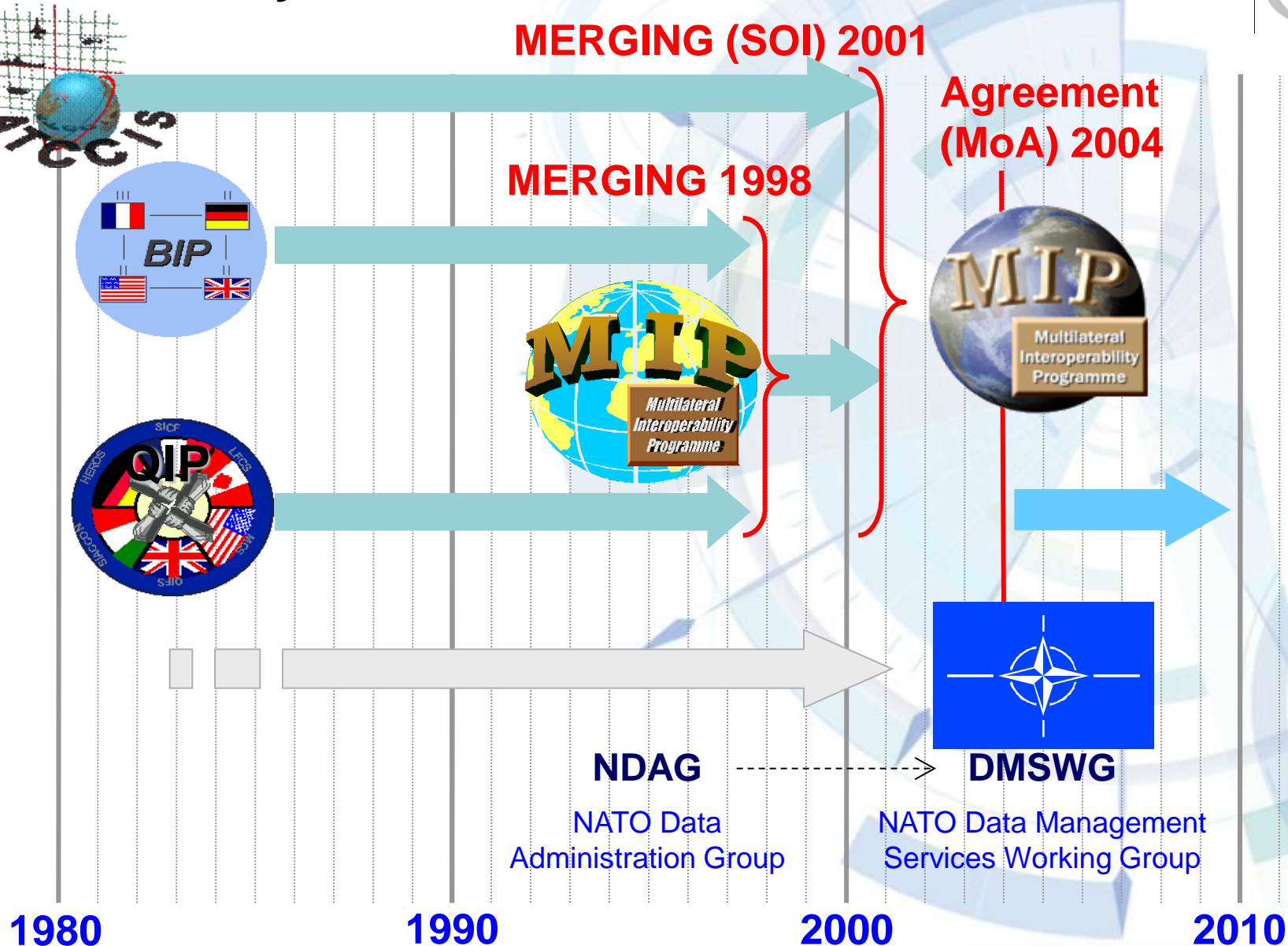
- SIR (Système d'Information Régimentaire)
- MOIE Sic Terre (Fédération de Système de l'armée de Terre)
- JoCCIS (Joint Command and Control Information System)
- SILCENT (Système d'Information Logistique)
- SICA / PSP (Système d'Information et de Commandement des Armées)
(Pôle Stratégique Paris)
- IFTS (Interim Force Tracking System – NATO – Kosovo)
- FIS-H (Führungsinformationssystem)
- FAUST (Führungsaustattung taktisch)



The need for interoperability

- C4I systems are not stand-alone systems
 - multiple systems, multiple contractors
 - ➔ need for interconnection and standards
- Nationally
 - Interoperability based on ad-hoc interfaces
 - Interoperability based on standards
- Coalitions and multinational contexts
 - Standards are mandatory
 - Industry contributes to standards definition
 - BIP, QIP, ATCCIS, MIP
 - MAJIIC
 - ...
- National standards tend to align on multinational standards
 - e.g. MPIA vs JC3IEDM in France
- MIP is the reference in the C4I domain

MIP history



MIP Objectives

- The Aim of MIP is:
 - To achieve **international interoperability** of Command and Control Information Systems (C2IS)
 - **At all levels** from corps to battalion, or lowest appropriate level
 - In order **to support multinational (including NATO), combined and joint operations.**
- The MIP Scope is:
 - To deliver an interoperability solution to **Land** operational users in a **Joint environment**
 - To encourage and harmonise contributions from Air, Maritime and other **Communities of Interest (Cols)**



















MIP nations



FULL MEMBERS

CAN		TacC2IS
DEU		HEROS-2/1
DNK		DACCIS
ESP		SIMACET
FRA		SICF, SIR
GBR		ATacCS/ComBAT
ITA		SIACCON
NLD		ISIS
NOR		NORTaC/NORCCIS
SWE		ISMAR, SLB
TUR		TACCIS
USA		MCS

ASSOCIATE MEMBERS

ACT		BiSC-AIS-LC2IS	HRV		CAF
AUS		JCCS, BCSS	HUN		HAVIR
AUT		PHOENIX	LTU		TAVVIS
BEL		ISIS	POL		SZAFRAN / C3IS Jasmine
BUL		FICIS	PRT		SICCE
CHE		FIS HE	ROU		SIAAB
CZE		GF-TCCS	SVK		C2SYS
FIN		FINACCIS	SVN		SITAWARE
GRC		HARCCIS			

* Country codes according NATO STANAG 1059 Ed 8.

What is MIP?

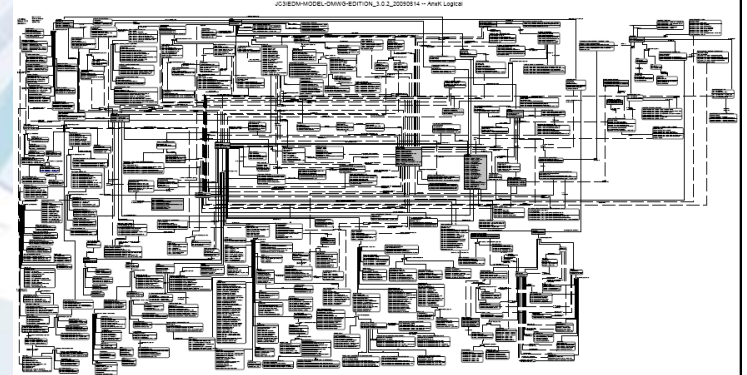


- MIP is:
 - The **Provider** of Consensus-based Technical Specs.
 - The Joint C3 Information Exchange Data Model (JC3IEDM) (STANAG 5525)
 - Two Exchange Mechanisms:
 - The Data Exchange Mechanism (DEM), also known as MIP Replication
 - The MEM, an extension to SMTP for informal exchanges
 - A **Forum** for exchanging information relevant to national implementation and fielding plans to enable synchronization
 - A **Rendezvous** for international interoperability testing
- MIP **is not**:
 - A typical cooperative development program:
 - No common funding
 - No single Program Manager
 - No common hardware or software development
 - MIP is **NOT** empowered to direct how nations develop their own C2IS.

MIP Products



- MIP produces:
 - A **common semantic model**: the **JC3IEDM** (Joint C3 Information Exchange Data Model)
 - STANAG 5525
 - Current version corresponding to MIP Baseline 3 is 3.0.2
 - The specification of two **Exchange Mechanisms**:
 - **DEM**: Data Exchange Mechanism (data replication mechanism)
 - **MEM**: Message Exchange Mechanism (based on SMTP, some specific extensions)
 - **Supporting documents** explaining:
 - How to use the JC3IEDM
 - How to use the MIP Solution (Operational Procedures)



MIP status : lessons were learnt

- After almost 10 years of development and usage of the MIP Solution, a thorough internal MIP review concluded that:
 - There were **very positive aspects** to the MIP Solution, especially the existence of a **common semantic model**
 - But that some aspects could be improved:
 - **Increase Responsiveness** to Needs
 - **Diversify the MIP exchange mechanisms** to support NATO and National architecture requirements
 - **Increase MIP Solution understandability, visibility & accessibility**
 - **Lower the total cost** of developing MIP-compliant stable solutions
- The conclusions of this review were that **a new approach is needed**



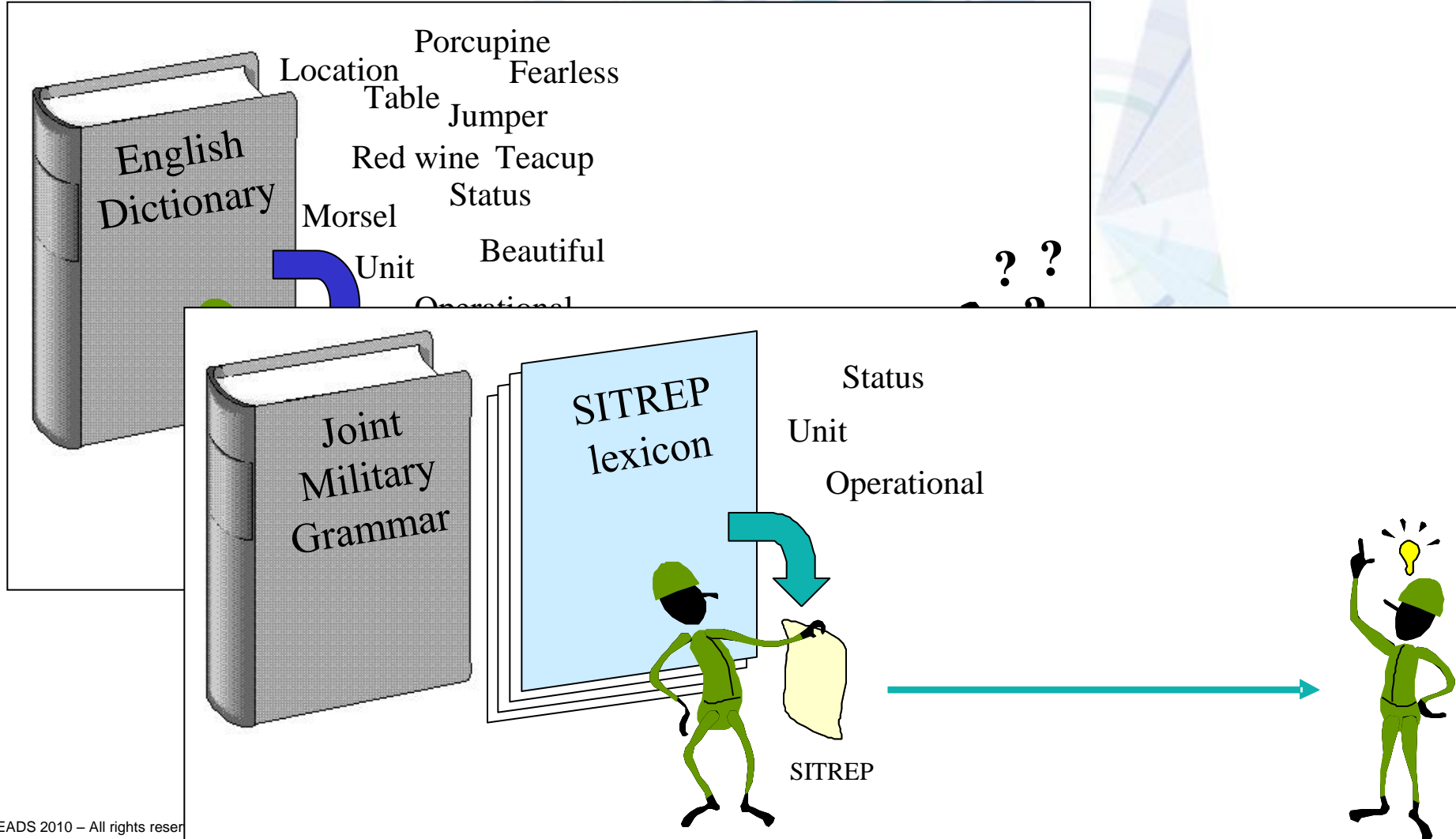
Way Ahead: new MIP orientations



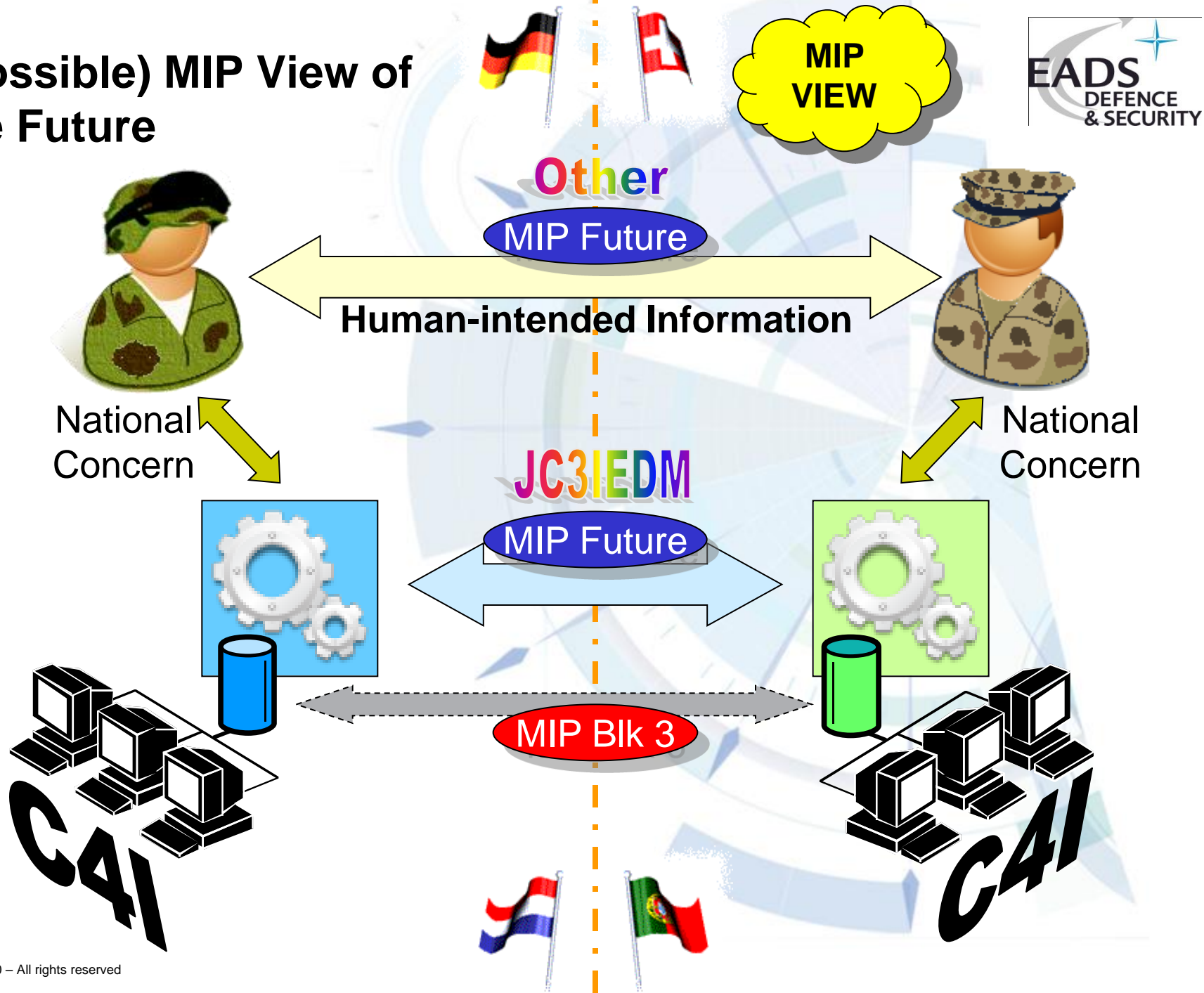
- The conclusions of the MIP internal review were that **a new approach was needed**
- Therefore, the MIP programme has started its **transformation** by changing its organisation and its objectives
 - ➔ Establish **Two Streams**:
 - Maintenance of Block 2 and 3
 - Future Block
 - ➔ Adopt a **Capability-based Approach**, supported by a **Service-Oriented Architecture**
 - ➔ **Better separate** Semantic Specification from Exchange Mechanism(s)
 - ➔ Adopt **standard practices and notations** (UML, NAF, XML...)
 - ➔ **Restructure the JC3IEDM** to overcome its known limitations
 - ➔ **Develop sub-views** to better suit the **various COIs** and implementation communities
 - ➔ Focus more on the **usage** of information and data than in the past
 - ➔ Distinguish between **Data** and **Human-intended Information**
 - ➔ **Adopt an Iterative Approach**, with frequent incremental releases

A Major Shift in the MIP View

- Switching from a Vocabulary to a Vocabulary + a Grammar



(Possible) MIP View of the Future



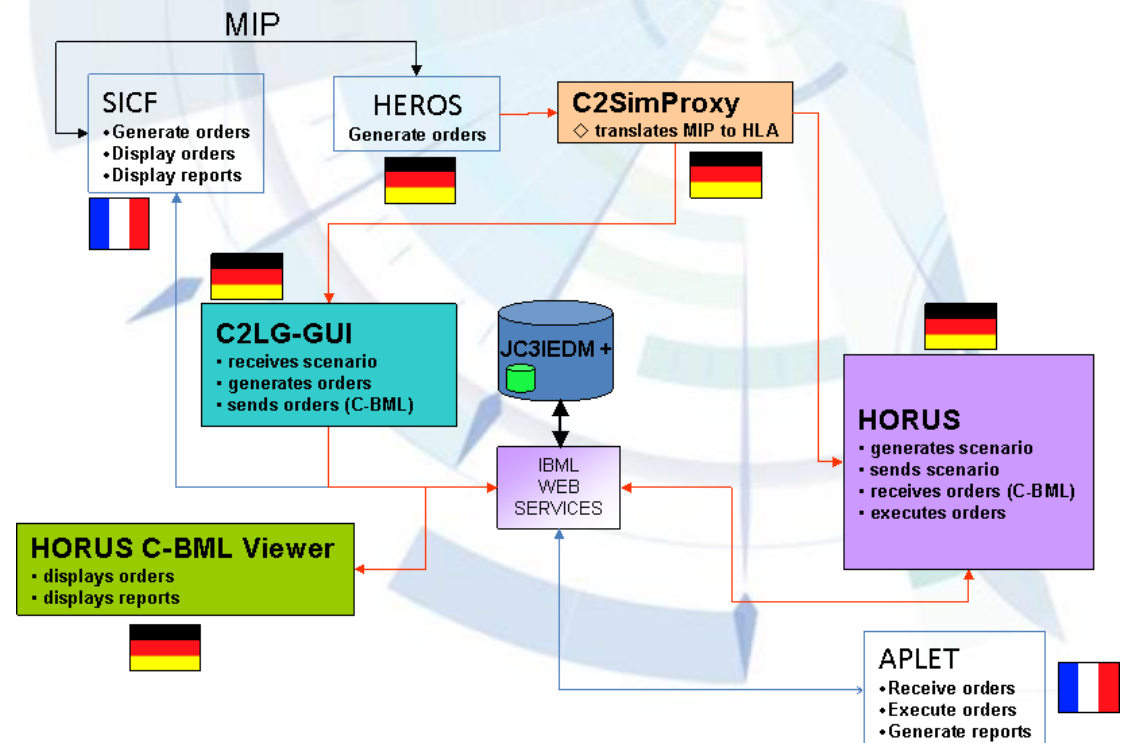
Back to BML

- Why BML ?
 - There is an emerging need for C4I-simulation interoperability
- For Training
 - to reduce number of simulation controllers
- For Decision Support
 - to integrate simulation as an embedded function in C4I
 - e.g. Course of Action Analysis

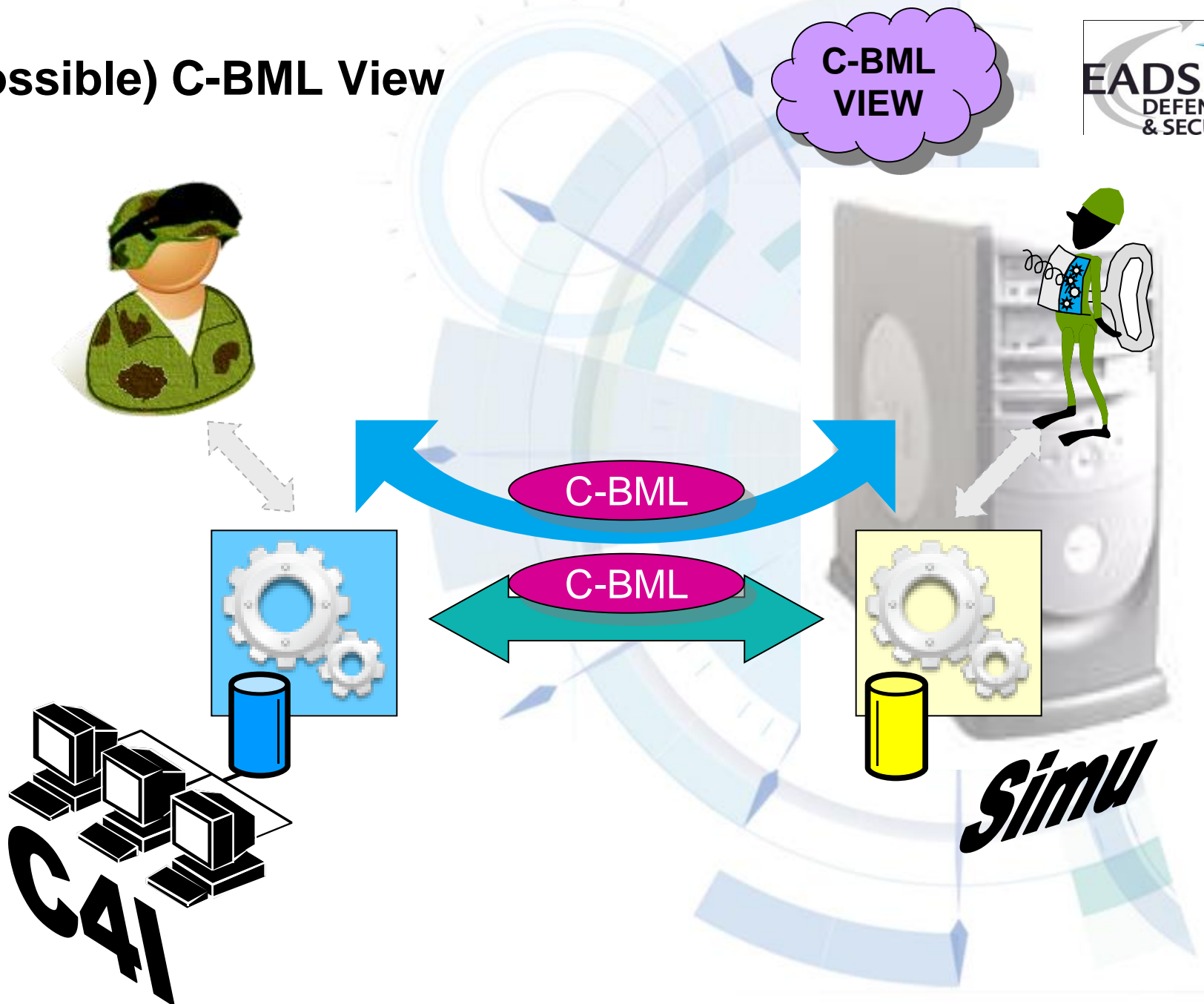
Interoperability is based on standards

- Several initiatives for C4I – simulation standardisation
- SISO C4ISR-simulation TRM
- SISO C-BML (standardization)
- NMSG C-BML (experimentation)

- EADS contributions:
 - SISO SG & PDG
 - NMSG ET-016
 - NMSG 048
 - COMELEC
- EADS just got a french MoD contract to support C4i-simulation standardisation activities



(Possible) C-BML View



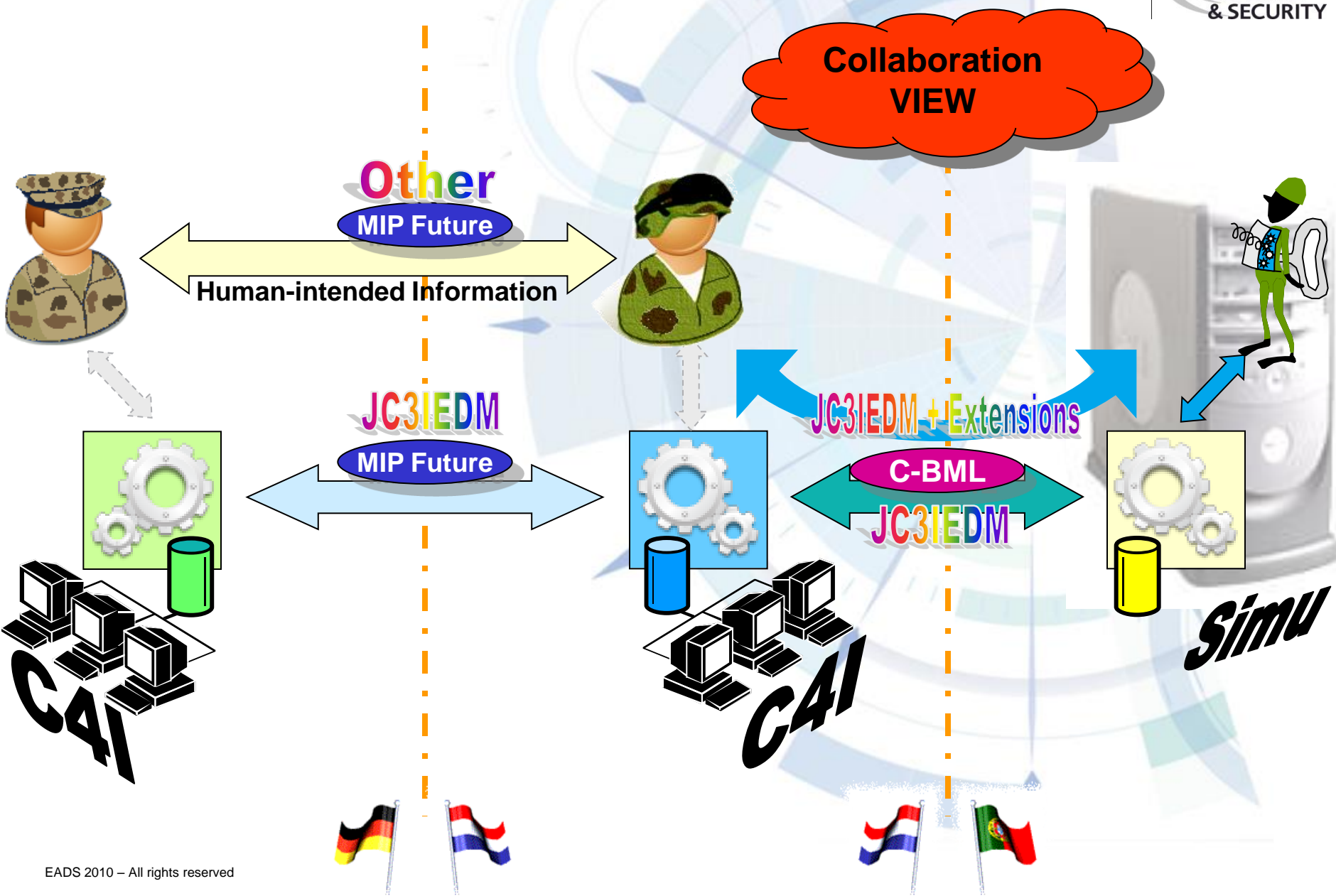
C-BML & MIP similarities

- C-BML
 - is already built using (parts of) JC3IEDM
 - defines some JC3 extensions
 - defines a grammar
 - developed experience using XML and Web services
- MIP
 - defines JC3IEDM and manages its evolutions
 - will focus more on the usage of information and data
 - needs to extend JC3IEDM usage rules
 - needs to develop a grammar
 - needs to define system / user behaviours
 - is adopting a SOA approach
 - will investigate new exchange mechanisms (web services...)
 - will continue to liaise with different COIs (like CBRN, MMW, Air Force...)

Benefits to work more closely together

- MIP reorganization is the opportunity for C-BML to be considered as the “Simulation COI”
- Benefits for C-BML groups
 - better access to JC3IEDM semantics
 - better access to operational expectations and operational experts
 - capacity to promote change proposals
 - better visibility of C-BML to the operational and C4I community
- Benefits for MIP
 - access to C-BML lessons learned (grammar definition, web services implementation)
 - broadens the scope of analysis for plans / orders / reports
 - improve MIP operational testing capability by allowing the introduction of multiple sides war-gaming simulation
- Additional benefits for the C4I community and industry
 - diminishes the semantic distance between C4I-C4I and C4I-simulation exchange concepts

Opportunities for C-BML & MIP collaboration



Conclusion

- MIP is currently updating its MIP communication and liaison plan (MCLIP)
 - It's the right time for C-BML to knock at the MIP door
- According to current MIP schedule, C-BML has the opportunity to influence MIP refoundation and JC3IEDM restructuring
- There are benefits for each group and for industry